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ABSTRACT

A survey of research literature on teenage alcohol use will reveal many variables related to teenage drinking. This study compared these variables in two separate communities to ascertain their global validity. To investigate factors leading to teenage alcohol use, 218 high school seniors from Washington and Iowa were surveyed. Dependent variables of boredom and activity were included with variables that other research had found to be significant. A multiple analysis of variance indicated significant differences in the dependent variables across the four levels of alcohol use (abstainers, light drinkers, moderate drinkers, and heavy drinkers) and between states. The findings suggest that alcohol use by adolescents correlates with the variables of religion, boredom, grade point average, activities, and peer consumption. A path analysis for each state using father nurturance, mother nurturance, religiousness, depression, boredom, grade point average, sports, school activities, peer consumption, and alcohol consumption revealed that paths for students in Washington and for students in Iowa were significantly different from each other, suggesting that each community may have its own equation for the onset of adolescent drinking. (NB)

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Correlates of Teenage Drinking Behavior in Two Communities

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Abstract

To investigate factors leading to teenage alcohol use we surveyed 218 high school seniors from Washington and Iowa. We included the dependent variables of boredom and activity with variables that other researchers had found significant. A MANOVA indicated significant differences in the dependant variables across the four levels of alcohol use and between states. A path analysis for each state using father nurturance, mother nurturance, religiousness, depression, boredom, grade point average, sports, school activities, peer consumption and alcohol consumption indicated an R^2 for Iowa of .33 and R^2 for Washington of .48. These paths were significantly different from each other. This suggests that each community may have its own equation for the onset of adolescent drinking.

Correlates of Teenage Drinking Behavior in Two Communities

Alcoholism is not only a problem for the adult population of the U. S. but is also one for teenagers (Smith, Canter, & Robin, 1989). A survey of research literature will yield many variables that are related to teenage drinking but cross community studies are missing. Basically, we wanted to compare these variables in two communities to ascertain their global validity.

Variables Related to Drinking

Peers. It follows from multiple studies (Berscheid & Walster 1978; Bigelow, 1977) that children become friends with others with the same interests. It is more likely that a child will drink if his or her friends drink (Biddle, Bank, & Marlin, 1980; Smith et al., 1989) and probably vice-versa (Downs, 1987). In addition, Oetting and Beauvais (1987) found that family strength, family sanctions, religious identification, and school adjustment relate to peer drug use which then significantly relates to the adolescent's drug use ($R^2 = .55$).

Parental Nurturance. Hays, Stacy, Widaman, DiMatteo, and Downey (1986) found that high parental nurturance correlated to lower alcohol use. Studies by Barnes (1984), Pandina and Schuele (1983), and Wechsler and Thum (1973) found similar results. Unfortunately, it is not known which came first, low parental nurturance or problem drinking behavior.

Numerous studies also indicate that parental drinking is correlated to adolescent drinking behavior (Biddle et al., 1980; Smith et al., 1989; Webster, Harburg, Gleiberman, Schork, & DiFranceisco, 1989); yet, a recent longitudinal study by Pandina and Johnson (1989) only weakly supports this hypothesis.

Religion. Researchers find that religion is negatively correlated with alcohol use (Hay, et. al., 1986). Donovan and Jessor (1978) and Wechsler and Thum (1973) found that non-problem drinkers were significantly more religious than problem drinkers. Donovan, Jessor, and Jessor (1983) found that problem-drinking adults were less religious as adolescents than those who were not problem drinkers.

Academic. Alcohol users do not seem to care as much about their scholastic achievement or simply are unable to achieve as highly as non-alcohol users (Barnes, 1984; Wechsler & Thum, 1973). Jessor and Jessor (1975) found that abstainers were more achievement oriented and received higher grades. Also, in a sampling of 48 states, Donovan and Jessor (1978) found heavy users of alcohol valued academic achievement less and attained lower grades. Finally, Donovan et al. (1983) found that problem drinking adults did not care about school as adolescents.

Depression. In a study by Deykin, Levy, and Wells (1978) college students with an alcohol abuse history were approximately four times more likely as non-problem drinkers to have a history of Major Depressive Disorder. In addition, 79 percent of drug

and alcohol abusers in their sample of 424 students had a psychiatric problem before the substance abuse started.

Boredom and Activity. Researchers often implicate peer associations with adolescent alcohol use; yet, as indicated by Selnow and Crano (1986) there needs to be a refinement in specifically which peer relationships lead to increased alcohol usage. We looked at how two different types of school activities might affect alcohol usage: sports, and school organizations such as clubs, music, drama, etc. In the same vain as Selnow and Crano (1986) we reasoned that greater involvement in these school activities might decrease alcohol usage. We also included two questions dealing with boredom and attempts by students to find something to do if bored as they might be precursors to students becoming involved in school activities.

Measurement of Drinking Behavior

Unfortunately, the studies cited above used different methods to measure drinking behavior and some did not described the method used. We measured on a 1 to 5 scale both frequency of drinking (1 = abstain to 5 = four or more times a week) and amount consumed (1 = none to 5 = five or more on an occasion).

Present Study

For this study we included the variables: mother nurturance, father nurturance, religion, depression, boredom, GPA, sports activity, other activity, peer consumption, and alcohol use. In the path analysis the first three variables preceded the others.

We used peer consumption leading to Alcohol use as the end variables.

Most studies (e.g., Pandina and Johnson, 1989) find few gender differences in drinking behaviors; yet, White and Labouvie (1989) did find significant main effects for gender on alcohol related problems. We decided to include gender as an independent variable to further verify previous findings.

Method

Subjects

We surveyed 97 high school seniors from Washington state (49 = male, 48 = female) and 121 seniors from Iowa (58 = male, 60 = female, 3 = unmarked). Their ages ranged from 17 to 21. The cities involved had a population of 30,000 for Washington State and 10,000 for Iowa. They were both "small towns" and not parts of larger communities. Ethnicity was not surveyed, although both samples were overwhelmingly Caucasian.

Instruments

All subjects completed a 42-item questionnaire. We used, with slight modifications, Potvin and Lee's (1980) questions on parental nurturance and religion, and Gillete and Hornbeck's (1973) depression scale. We constructed the questions on sports activity, other activity, boredom, peer consumption, and alcohol use. A final question allowed students to comment on their reasons for drinking. Students answered most of the questions using a Likert-type scale ranging from one to five. Answers for

some questions covered all four years in high school but we used only data on the senior year in this report. (A copy of the survey can be obtained from the second author.)

Procedure

Homeroom teachers administered the survey in Iowa and teachers from four senior citizenship classes in Bellingham. Teachers informed students that the survey concerned alcohol usage, they were free to not participate, their names would not be taken, and they had as much time as needed to complete the survey. This was not a random sample; instead, as much as possible, we surveyed the entire senior class.

We divided all subjects into four drinking categories: abstainers, light drinkers, moderate drinkers, and heavy drinkers. Light drinkers have up to three drinks on an occasion once or twice a month or one drink three or four times a month. Moderate drinkers have four or more drinks on an occasion once or twice a month, two to four drinks three to four times a month, one to three drinks two or three times a week, or one drink four or more times a week. Heavy drinkers have four or more drinks three or four times a month, or two to five drinks four or more times a week.

Results

A State by Alcohol MANOVA yielded a State main effect ($F(1, 3.5, 79.5) = 2.45$, $p = .012$) and an Alcohol main effect ($F(3, 2.5, 79.5) = 4.86$, $p = .000$). The Gender by Alcohol MANOVA

yielded only a main effect for Alcohol ($F(3, 2.5, 78.5) = 4.45$, $p = .000$). A State x Gender x Alcohol MANOVA was not possible due to several cells having low frequencies. Means and standard deviations are presented in Tables 1 and 2.

Insert Tables 1 and 2 about here

State univariate tests showed that Iowa students had a higher overall GPA ($F(1,169) = 9.06$, $p = .003$), engaged in more activities ($F(1,169) = 4.52$, $p = .035$), and had peers that consumed more alcohol ($F(1,169) = 4.52$, $p = .035$).

Scheffe analyses using an alpha level of .05 showed that abstainers were significantly more religious and less bored than all others, had a higher grade point average than light or moderate drinkers but not heavy drinkers, and were more involved in school activities than heavy drinkers. Abstainer's peers reportedly drank significantly less than peers of light, moderate or heavy drinkers. Peers of moderate drinkers also drank significantly less than those of heavy drinkers.

Chi-square tests found a significant State by Alcohol Consumption effect, $X^2(3) = 14.07$, $p < .003$ (see table 3) and a significant Gender by Alcohol Consumption effect, $X^2(3, 213) = 19.83$, $p < .001$ (See Table 4).

Insert Tables 3 and 4 about here

Students also had the opportunity to fill in their own reasons for why they do or do not drink. The most frequent responses for drinking were that their friends drink (n = 42), it is fun (n = 32), and it helps to pass the time (n = 17). Reasons for not drinking were that they can have fun without it (n = 18), they disliked the taste (n = 12), and it was against their religious practices (n =10).

Finally, we analyzed the data with path analysis (Joreskog & Sorbom, 1984). For Iowa the R^2 was .33 and for Washington .48 (See Figures 1 and 2 respectively). In addition, the Washington path solution using Iowa's data was significantly different ($X^2(27) = 103.79$, $p = .000$) as was the Iowa path solution using Washington's data ($X^2(25) = 79.01$, $p = .000$) indicating that each state may have differing paths to alcohol usage.

Insert Figures 1 and 2 about here

Discussion

From the MANOVAs there appears to be a clear picture that alcohol use by adolescents correlates with the variables of religion, boredom, G.P.A., activities, and peer consumption. Our data does lend support to Selnow and Crano (1986) proposal that

specific activities can be correlated to alcohol usage, but unfortunately this also seems to be community specific as sports appears to help in decreasing alcohol usage in Iowa but might increase it in Washington.

It is also quite clear from the Chi-square tests that alcohol consumption rates differ in Washington and Iowa and also differ according to gender. It is interesting to note that although rates differed by gender, the influences of the dependent variables on these rates were not different (i.e., What correlates with male drinking also correlates to female drinking).

Perhaps the most important finding of this study is the differences between these two communities (G.P.A., activities, and peer consumption from the MANOVA, alcohol consumption from the Chi-square, and paths to drinking from the path analyses). If each community has their own unique set of variables that interact to promote alcohol usage then researchers may need to abandon attempts to find global descriptions of routes to alcohol usage. Communities interested in curbing alcohol usage may have to conduct their own analyses to find the prevalent factors in their community.

Of course, there are also some variables that we missed in this analysis such as the need to drink to have fun, and the relaxing effect that alcohol has for adolescents. In addition,

it now seems that this sample may have been too old to accurately determine the reasons why adolescents start to drink alcohol.

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Table 1

Means and Standard Deviations for dependent measures by Alcohol Consumption for Iowa.

	Abstainer		Light		Moderate		Heavy	
Variable	M	SD	M	SD	M	SD	M	SD
	(n=34)		(n=10)		(n=16)		(n=38)	
Mother	3.59	.87	3.96	1.14	3.04	.95	3.56	.73
Father	3.15	.98	3.70	.69	3.13	.84	2.78	.89
Religion	3.77	1.06	3.14	1.02	3.10	.76	3.06	1.06
Depression	2.30	.54	2.31	.77	2.20	.51	2.35	.68
Boredom	2.22	.94	2.40	.57	2.28	.86	2.61	1.00
GPA	3.38	.53	3.00	.64	2.91	.61	3.13	.45
Sports	2.56	1.52	2.50	1.58	2.81	1.51	2.55	1.59
Activity	3.91	1.55	3.30	1.77	2.56	1.55	2.31	1.45
Peer Con.	3.09	1.40	4.10	.57	3.75	1.00	4.50	.68

Table 2

Means and Standard Deviations for dependent measures by Alcohol Consumption for Washington.

	Abstainer		Light		Moderate		Heavy	
Variable	M	SD	M	SD	M	SD	M	SD
	(n=43)		(n=4)		(n=15)		(n=17)	
Mother	3.70	.87	3.20	.63	3.65	.81	3.39	.94
Father	2.94	.90	2.70	1.04	3.39	.73	3.25	.91
Religion	3.25	1.06	2.95	.34	2.73	1.18	2.89	1.02
Depression	2.23	.63	2.48	.28	1.99	.56	2.36	.79
Boredom	1.81	.70	1.75	.50	2.33	1.16	2.59	1.05
GPA	3.19	.53	2.76	.19	2.65	.51	2.58	.55
Sports	2.35	1.70	1.25	.50	2.47	1.46	2.77	1.89
Activity	3.30	1.75	1.50	1.00	2.80	1.61	1.88	1.17
Peer Con.	2.58	1.31	3.00	.82	3.40	.83	4.71	.47

Table 3

Chi-square for State by Alcohol Consumption.

	Iowa		Washington	
Consumption	n	col %	n	col %
Abstainer	41	33.9	51	53.7
Light	15	12.4	5	5.3
Moderate	18	14.9	19	20.0
Heavy	47	38.8	20	21.1

Note. $X^2(3) = 14.07$, $p = .0028$.

Table 4

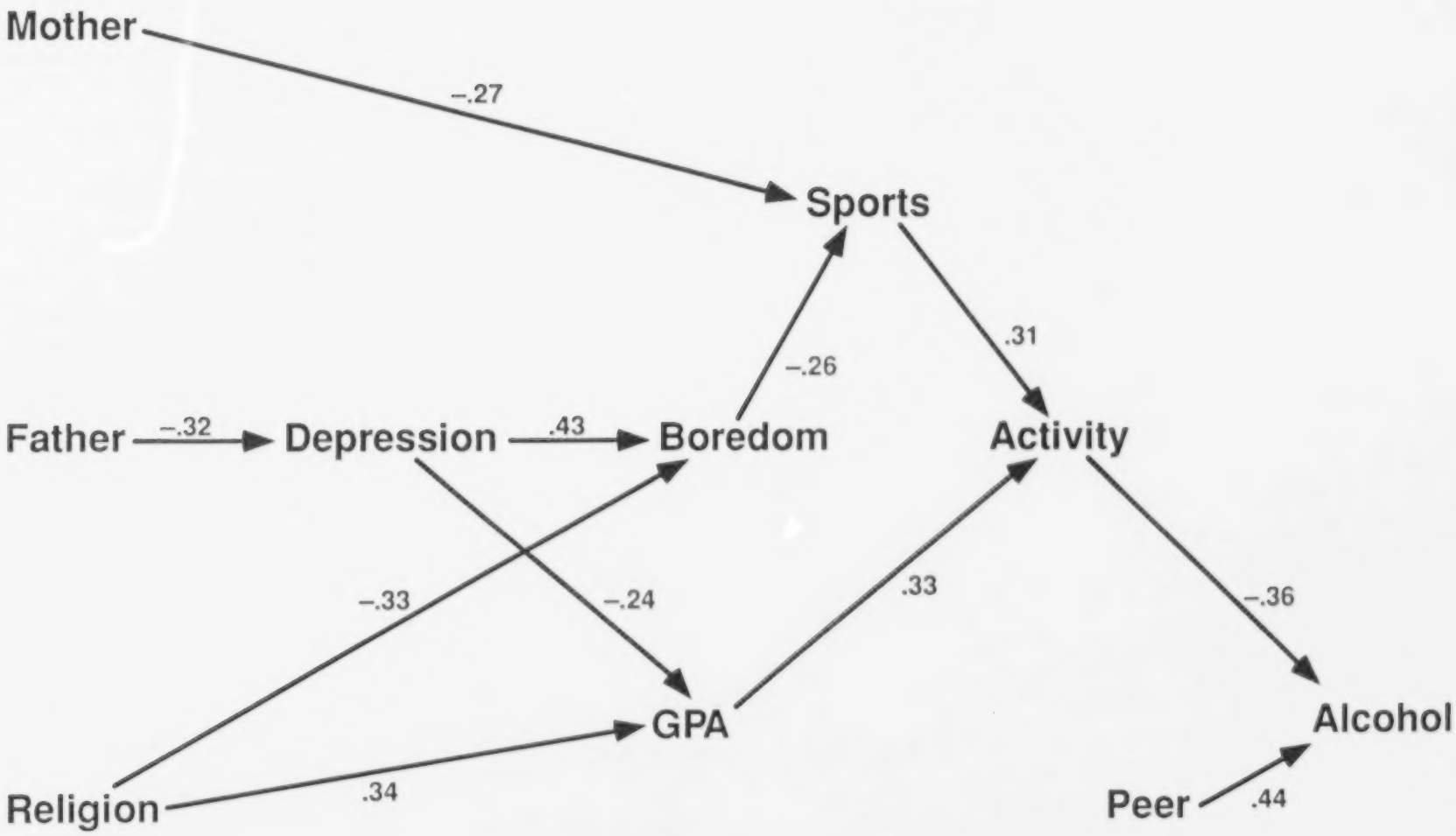
Chi-square for Gender by Alcohol Consumption.

	Male		Female	
Consumption	n	col %	n	col %
Abstainer	35	33.0	57	53.3
Light	6	5.7	14	13.1
Moderate	19	17.9	17	15.9
Heavy	46	43.4	19	17.8

Note. $X^2(3) = 19.78$, $p = .0002$.

Figure Caption

Figure 1. Significant Path Analysis for Iowa (R^2 = .33; $X^2(31)$ = 36.20, p = .24).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GPA
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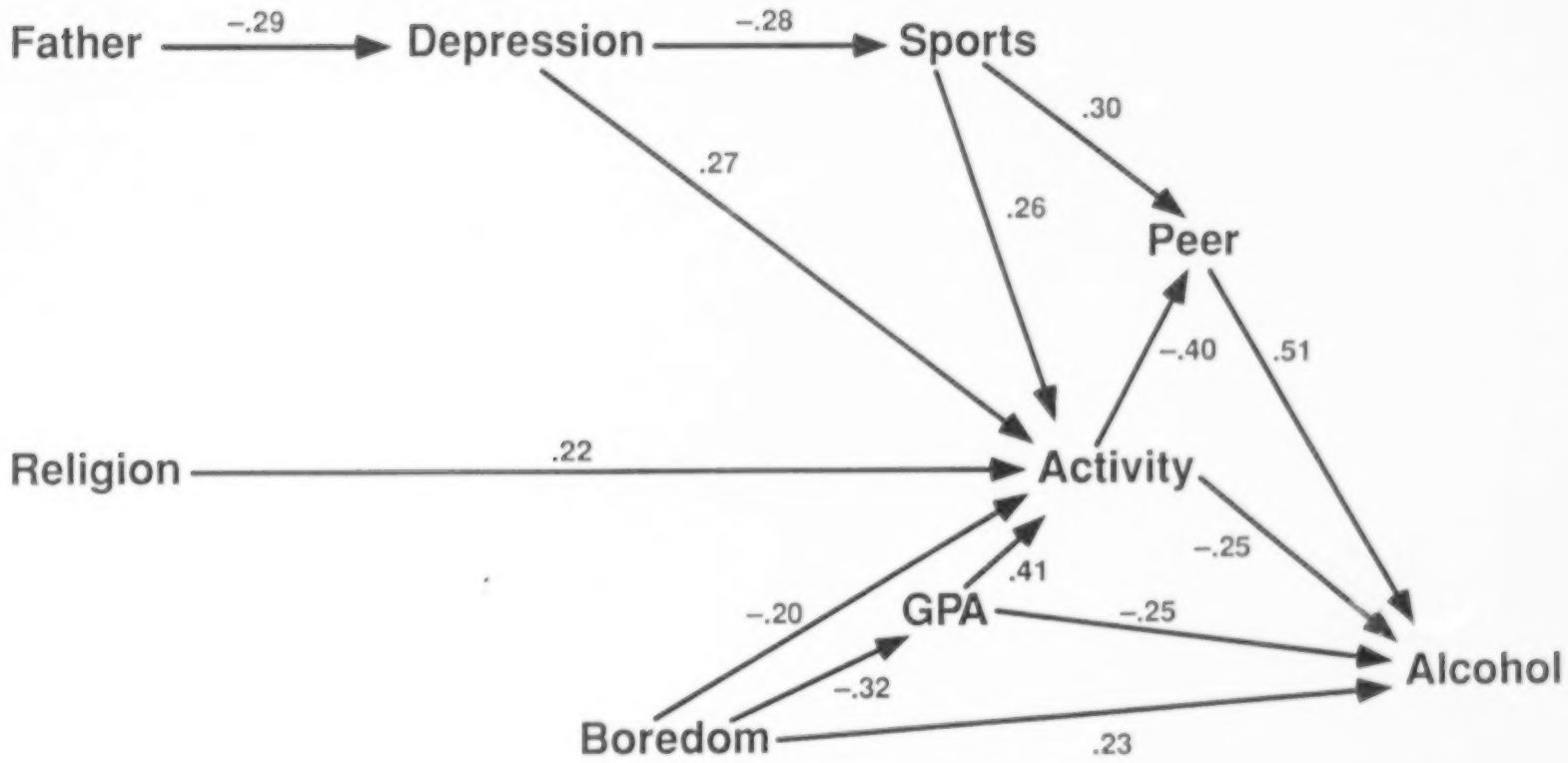
Figure Caption

Figure 2. Significant Path Analysis for Washington (R^2 = .48; $X^2(29)$ = 39.98, p = .084).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